Claims

[c1] 1. An apparatus comprising:
a cap including an aperture and configured to allow an electron to pass along an electron path through the aperture; and
a cover assembly including a cover adjacent to the aperture, wherein the cover is configured to lie along the electron path during at least one point in time.

[c2] 2. The apparatus of claim 1, wherein the cover assembly further comprises means for displacing the cover.

[c3] 3. The apparatus of claim 1, wherein the cover assembly further comprises a spring.

[c4] 4. The apparatus of claim 3, wherein the spring comprises stainless steel.

[c5] 5. The apparatus of claim 3, wherein the cover assembly further comprises means for releasing the spring.

[c6] 6. The apparatus of claim 3, wherein the cover assembly further comprises a material comprising an end, wherein the end is fastened to the spring.

[c7] 7. The apparatus of claim 6, wherein the material is configured to release the spring when a sufficient amount of an electrical current is passed through the material.

[c8] 8. The apparatus of claim 1, wherein the cover assembly comprises an actuator.

[c9] 9. The apparatus of claim 1, wherein the cover assembly further comprises a cover guide in contact with the cover.

[c10] 10. The apparatus of claim 1, wherein the cover comprises stainless steel.

[c11] 11. The apparatus of claim 1, wherein the cover comprises an insulator.

[c12] 12. An electron gun comprising:
a cap assembly comprising a cap, a cap aperture, a cover, and a spring, wherein:
the cover overlies the cap aperture during at least one point in time; and

the spring comprises a first end attached to the cover and a second end attached to the cap; and

a focus electrode spaced apart and electrically insulated from the cap assembly and comprising a focus aperture in alignment with the cap aperture.

[c13] 13. The electron gun of claim 12, wherein at least a portion of the cap assembly comprises stainless steel.

[c14] 14. The electron gun of claim 12, wherein the cover comprises stainless steel.

[c15] 15. The electron gun of claim 12, wherein the cover comprises an insulator.

[c16] 16. The electron gun of claim 12, wherein the cap further comprises a cover guide in contact with the cover.

[c17] 17. A method of using a tube comprising:

placing at least a portion of an electron gun within a first end of the tube, wherein the electron gun comprises:

a cap including an aperture; and

an attenuator assembly including an attenuator adjacent to the aperture, wherein the attenuator lies along a path for an electron beam within the electron gun when the electron is activated;

flowing a gas at least near a portion of the electron gun while the attenuator blocks the aperture; and

sealing the tube.

[c18] 18. The method of claim 17, further comprising activating the electron gun to generate the electron beam that passes through the aperture.

[c19] 19. The method of claim 18, further comprising moving the attenuator for a first time to a first position, so that the electron beam can pass through the aperture to a location near a second end of the tube that is opposite the first end.

[c20] 20. The method of claim 19, wherein moving the attenuator for the first time permanently moves the attenuator such that it no longer ever blocks the path.

[c21] 21. The method of claim 19, further comprising moving the attenuator for a second time to a second position, so that the attenuator lies near the aperture and substantially prevents the electron beam from reaching the location while the attenuator is at the second position, wherein moving the attenuator for the second time is performed after activating the electron gun.

[c22] 22. The method of claim 18, wherein the electron beam penetrates through the attenuator.

[c23] 23. The method of claim 17, wherein flowing the gas comprises evacuating the tube.

[c24] 24. The method of claim 17, wherein the electron gun is an electron gun.

[c25] 25. The method of claim 17, further comprising activating a circuit to move the attenuator to expose at least a portion of the aperture after sealing the tube.

[c26] 26. The method of claim 25, wherein activating the circuit blows a fuse coupled to the cover.